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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/067,747

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Ryo Yamada

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11/29/2006

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EXAMINER

LI, SHI K

ART UNIT

PAPER NUMBER

2613

DATE MAILED: 11/29/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/067,747	<b>Applicant(s)</b> YAMADA, RYO	
	<b>Examiner</b> Shi K. Li	<b>Art Unit</b> 2613	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 26 September 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1,2,6-10,12,14,16,20 and 21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,6-10,12,14,16,20 and 21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 101***

1. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-2, 6-10, 12 and 14 are rejected under 35 U.S.C. 101 because the claimed invention lacks patentable utility. Claim 1 claims a method comprising steps for assigning node numbers to node. However, it does not including steps for utilization of the assigned node numbers. Therefore, it lacks patentable utility. Claim 10 claims a method comprising steps for assigning node numbers to node. However, it does not including steps for utilization of the assigned node numbers. Therefore, it lacks patentable utility. Claim 12 claims a method comprising steps for assigning node numbers to node. However, it does not including steps for utilization of the assigned node numbers. Therefore, it lacks patentable utility.

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 16 and 20-21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 16 claims a node device. However, claim 1 includes limitations related to a mesh network. For example, claim 1 recites "if a new ring is identical to an existing ring using the same wavelength, in said ring map, the same node numbers as node numbers locally assigned to

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nodes in said existing ring are assigned to the corresponding nodes to said existing ring in said new ring". Furthermore, claim 20 recites the limitation "wherein a management system managing the network centrally manages and provides said ring map to each node device." A management system as described in claim 20 is not part of the node device. If a management system configures the network as described in claim 16, the nodes of the network would infringe claim 16 while if another management system configures the same network in different way than what is described in claim 16 would not infringe claim 16. That is, according to the limitations of claims 16 and 20-21, the same node device would infringe the claims with one management system while would not infringe the claims with another management system. This is not possible unless the claim language is indefinite.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-2, 7, 9-10, 12, 14, 16 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ye et al. (Y. Ye et al., "On Joint Protection/Restoration in IP-Centric DWDM-Based Optical Transport Networks", IEEE Communications Magazine, June 2000) in view of Li et al. (L. Li et al., "Dynamic Wavelength Routing Using Congestion and Neighborhood Information", IEEE/ACM Transactions on Networking, Vol. 7, No. 5, October 1999) and Lu (U.S. Patent 5,815,490).

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Regarding claims 1, 10, 12 and 16, Ye et al. teaches in FIG. 5 a mesh network consisting of a plurality of nodes OXC1-OXC4, each of said nodes having a cross-connecting function. Ye et al. teaches in the abstract that the network is a DWDM optical fiber communication network. Ye et al. teaches on page 180, right col., last paragraph that a working path and a backup path are provisioned dynamically. The working path and the backup path form a ring (e.g., see FIG. 5(d). Ye et al. suggests using least congested path algorithm for selecting the working path and backup path. Li et al. teaches dynamic routing using least-congestion routing. One of ordinary skill in the art would have been motivated to combine the teaching of Li et al. with the mesh network protection/restoration method of Ye et al. because least congestion routing is suggested by Ye et al. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to use least congested path algorithm, as taught by Li et al., for dynamically selecting working and backup path in the mesh network protection/restoration method of Ye et al. because least congestion routing is suggested by Ye et al.

The combination of Ye et al. and Li et al. still fails to teach the assignment of node ID in a ring configuration. Lu teaches in FIG. 4A that a ring has a ring ID and teaches in FIG. 4D that a node has node ID. In a situation where a node belongs to a plurality of rings, it is obvious to use the ring ID together with the node ID to identify a node. That is, if a node belongs to the same ring, it has the same ring ID/node ID combination. For two different rings, a node common to the two rings has different ring ID/node ID combinations. One of ordinary skill in the art would have been motivated to combine the teaching of Lu with the modified WDM network of Ye et al. and Li et al. because the combination of ring ID/node ID uniquely identifies a node in a network without ambiguity. Thus it would have been obvious to one of ordinary skill in the art

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at the time the invention was made to use ring ID/node ID for identifying nodes, as taught by Lu, in the modified WDM network of Ye et al. and Li et al. because the combination of ring ID/node ID uniquely identifies a node in a network without ambiguity.

Regarding claim 2, Lu teaches in FIGS. 4A-4E and FIG. 6a portion of a ring table comprising link information, node ID and ring ID.

Regarding claims 7 and 20, Lu teaches in FIG. 1B a subnetwork controller SNC for ring management.

Regarding claim 9, Ye et al. illustrates in FIG. 5 for failure recovery where traffic is switched from working path to backup path when failure occurs along the working path.

Regarding claim 14, Lu teaches in col. 8, lines 22-46 WDM-based optical network.

6. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ye et al., Li et al. and Lu as applied to claims 1-2, 7, 9-12, 14, 16 and 20 above, and further in view of Sparks et al. (U.S. Patent Application Pub. 2002/0080437 A1).

Ye et al., Li et al. and Lu have been discussed above in regard to claims 1-2, 7, 9-12, 14, 16 and 20. The difference between Ye et al., Li et al. and Lu and the claimed invention is that Ye et al., Li et al. and Lu do not teach shared protection. Sparks et al. teaches in FIG. 2 and paragraphs [0007] and [0011] the sharing of protection paths. One of ordinary skill in the art would have been motivated to combine the teaching of Sparks et al. with the modified protection method of Ye et al., Li et al. and Lu because sharing protection bandwidth improves bandwidth efficiency. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to share protection bandwidth, as taught by Sparks et al., in the modified

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protection method of Ye et al., Li et al. and Lu because sharing protection bandwidth improves bandwidth efficiency.

7. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ye et al., Li et al. and Lu as applied to claims 1-2, 7, 9-12, 14, 16 and 20 above, and further in view of Ramamurthy et al. (R. Ramamurthy et al., "Capacity Performance of Dynamic Provisioning in Optical Networks", Journal of Lightwave Technology, Vol. 19, No. 1, January 2001).

Ye et al., Li et al. and Lu have been discussed above in regard to claims 1-2, 7, 9-12, 14, 16 and 20. The difference between Ye et al., Li et al. and Lu and the claimed invention is that Ye et al., Li et al. and Lu do not teach a distributed manner for generating network map and setting up paths. Ramamurthy et al. teaches in p. 42, Section C to use distributed routing protocol such as OSPF and its extension to collect network information. One of ordinary skill in the art would have been motivated to combine the teaching of Ramamurthy et al. with the modified protection method of Ye et al., Li et al. and Lu because a distributed network management system scales well as the size of the network increases and has high reliability. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to use distributed routing protocol for generating network map and setting up paths, as taught by Ramamurthy et al., in the modified protection method of Ye et al., Li et al. and Lu because a distributed network management system scales well as the size of the network increases and has high reliability.

8. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ye et al., Li et al. and Lu as applied to claims 1-2, 7, 9-12, 14, 16 and 20 above, and further in view of

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Ramamurthy et al. (R. Ramamurthy et al., "Capacity Performance of Dynamic Provisioning in Optical Networks", Journal of Lightwave Technology, Vol. 19, No. 1, January 2001).

Ye et al., Li et al. and Lu have been discussed above in regard to claims 1-2, 7, 9-12, 14, 16 and 20. The difference between Ye et al., Li et al. and Lu and the claimed invention is that Ye et al., Li et al. and Lu do not teach a distributed manner for generating network map and setting up paths. Ramamurthy et al. teaches in p. 42, Section C to use distributed routing protocol such as OSPF and its extension to collect network information. One of ordinary skill in the art would have been motivated to combine the teaching of Ramamurthy et al. with the modified protection method of Ye et al., Li et al. and Lu because a distributed network management system scales well as the size of the network increases and has high reliability. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to use distributed routing protocol for generating network map and setting up paths, as taught by Ramamurthy et al., in the modified protection method of Ye et al., Li et al. and Lu because a distributed network management system scales well as the size of the network increases and has high reliability.

#### ***Response to Arguments***

9. Applicant's arguments filed 26 September 2006 have been fully considered but they are not persuasive.

The Applicant argues that Lu does not teach if a new ring to be configured is identical to an existing ring using the same wavelength as that of the new ring, the same node numbers as node numbers locally assigned to node in the existing ring are assigned to the corresponding nodes to each node of the existing ring in the new ring. Furthermore, if the new ring crosses or is



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adjacent to the existing ring using in the same wavelength, local node numbers different from those of the nodes in the existing ring are assigned to the nodes in the new ring. The Examiner disagrees. As admitted by the Applicant, Lu teaches a ring ID and node ID. It follows naturally that in the same ring, the node has the same ring ID and node ID. On the other hand, if the node belong to two different rings, the two rings cross or adjacent, and the node has different identification because the ring ID/node ID combinations are different for the same node when considered as member of the two different rings.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shi K. Li whose telephone number is 571 272-3031. The examiner can normally be reached on Monday-Friday (8:30 a.m. - 5:00 p.m.).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on 571 272-3022. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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skl

24 November 2006

A handwritten signature in black ink, appearing to read 'SKL' with a stylized flourish.

**Shi K. Li**  
**Patent Examiner**